



20 February 2020

Mr. Will Geiger
Remedial Project Manager
U.S. Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103-2029

Reference: 0042525

Subject: North Penn Area 2 Superfund Site
Progress Report for July – December 2019

Dear Mr. Geiger,

On behalf of AMETEK, Inc. (AMETEK) and Penn Color, Inc. (Settling Defendants), Environmental Resources Management, Inc. (ERM) hereby submits this progress report to the U.S. Environmental Protection Agency (USEPA) pursuant to Section X of the Consent Decree (Consent Decree) executed between the Settling Defendants and the United States of America and entered on 10 February 2011. This progress report covers the above-referenced period.

1. SUMMARY OF ACTIVITIES PERFORMED IN REFERENCED PERIOD

1. Recovery wells PW-3 and MW-2S were operated to recover volatile organic compound (VOC)-impacted groundwater during the entire referenced period.
2. The Settling Defendants continued wetland and surface soil operation and maintenance (O&M) activities, including the following:
 - a. ERM inspected the wetland and surface soil area restorations (plantings and seeded areas). These areas were found to be functioning consistent with the Remedial Action design.
3. The Settling Defendants continued groundwater O&M activities, including the following:
 - a. ERM replaced the flow meter for PW-3 on 2 October 2019.
 - b. ERM conducted a Site-wide groundwater elevation survey (39 wells; MW-2S was unable to be gauged) on 4 December 2019.
 - c. ERM collected surface water samples and surface water elevation measurements from four locations on 4 December 2019 and 5 December 2019.
 - d. ERM performed the semiannual groundwater monitoring event on Group 1 wells (6 wells) on 4 December 2019. During the 4 December 2019 semi-annual groundwater sampling event, it was determined that the pump in MW-2S was not operating properly. As a result, no groundwater sample could be collected from MW-2S.
 - e. During the semiannual groundwater monitoring event completed on 4 December 2019, it was determined that the pump in MW-2S was not operating correctly. The pump in MW-2S was observed to be operating properly during the monthly inspections from July to November 2019. In January 2020, the MW-2S pump malfunction was determined to be a clogged moisture separator. Following cleaning of the moisture separator, the cycle pump at MW-2S resumed proper operation.

4. The Settling Defendants completed the construction of the sub-slab depressurization (SSD) system at Building 1.
 - a. ERM oversaw SSD system construction from 15 July 2019 to 31 October 2019. Construction activities included header pipe installation, trenching, system enclosure delivery, and system enclosure pipe installation.
 - b. The SSD system began operations on 9 December 2019.
5. The Settling Defendants conducted the following work related to perfluoroalkyl substances (PFAS).
 - a. Based on groundwater samples collected from MW-2S and PW-3 in March 2019, the Settling Defendants and the USEPA agreed that a set of 15 perimeter monitoring wells would be sampled to evaluate whether PFAS is coming from an off-site source.
 - b. ERM collected groundwater samples for PFAS from 15 perimeter monitoring wells from 11 through 14 November 2019.

2. SUMMARY OF DATA RECEIVED OR GENERATED IN REFERENCED PERIOD

1. Table 1 contains the groundwater analytical data for the semiannual groundwater monitoring event conducted on 4 December 2019. Results of this sampling event remain consistent with recent historical results. Group 1 wells, other than PW-3, continue to be below the remediation goals, which indicates that the groundwater capture system continues to be effective.
2. Table 2 contains the surface water sample analytical data for the surface water sampling events conducted on 4 December 2019 and 5 December 2019. All the surface water sample results were below the cleanup levels (Surface Water Criteria), which indicates the wetlands remediation work has been effective.
3. Tables 3 through 5 summarize the recent performance data for recovery wells PW-3 and MW-2S. The most recent estimate of the amount of VOCs remaining in the bedrock groundwater is depicted on Figure A.
4. Table 6 contains the groundwater level and surface water level monitoring data collected on 4 December 2019.
5. Pumping rate and static water level monitoring data were evaluated to assure maintenance of hydraulic control over the contaminant plume. Figures 1 through 3 are potentiometric surface maps for respectively the shallow, intermediate, and deep wells and are based on the 4 December 2019 groundwater level monitoring. The figures indicate groundwater drawdown and capture is apparent.
6. Table 7 contains the groundwater sampling results for PFAS. Samples from three upgradient wells (MW-1S, MW-1I, and MW-8S) had concentrations above the 70 nanogram per liter (ng/L) threshold.

3. SUMMARY OF DELIVERABLES SUBMITTED IN REFERENCED PERIOD

1. ERM submitted to USEPA the progress report for the first half of 2019 on 22 August 2019.

4. ANTICIPATED ACTIVITIES FOR THE NEXT PERIOD

1. The Settling Defendants will continue groundwater RA activities, including the following:
 - a. PW-3 and MW-2S pump maintenance and/or replacement will be performed as necessary.
 - b. PW-3 and MW-2S operations and pumping rates will be monitored.
2. The following monitoring and sampling events will be performed.
 - a. Annual groundwater sampling of Group 1 and 2 wells (23 wells), site-wide wells water level gauging (40 wells), and stream gauging and sampling (4 locations) will be conducted in Spring 2020, likely April or May 2020.
3. The Settling Defendants will provide to USEPA a vapor intrusion assessment work plan to evaluate the effectiveness of the SSD system in Building 1. The associated sampling will be scheduled as described in final the work plan.

5. SCHEDULE PERCENT COMPLETION AND DELAYS

1. Not applicable at this time.

6. MODIFICATIONS TO PLANS OR SCHEDULES

1. There are no modifications to the work plans or schedules at this time.

7. COMMUNITY RELATIONS

1. Not applicable at this time.

Please review this information and, if you have any questions, please call me at 484-913-0360 or Rich Dulcey at 609-403-7509.

Yours sincerely,



Jake Ferry, P.E.
Project Manager

Enclosures: Tables 1 through 7
Figures A and 1 through 3

cc: D. Armstrong, PADEP
T. Deeney, AMETEK
M. Berg, Madelaine R. Berg, Esq. LLC
W. Ponticello, Penn E&R
R. Dulcey, ERM

Table 1
Groundwater Sampling Results - December 2019
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania

CLIENT ID: LAB ID: COLLECTION DATE: SAMPLE MATRIX: SAMPLE UNITS:		MW-2S ¹ - - Groundwater µg/L			MW-9I 1215129 12/4/2019 Groundwater µg/L			MW-13S 1215130 12/4/2019 Groundwater µg/L			MW-13I 1512131 12/4/2019 Groundwater µg/L		
Analyte	Cleanup Standard* (µg/L)	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
<i>Volatile Organic Compounds</i>													
Carbon Tetrachloride	5	NS		0.2	ND		0.2	ND		0.2	ND		0.2
1,2-Dichloroethane	5	NS		2	ND		2	ND		2	ND		2
1,1- Dichloroethene	7	NS		2	ND		0.2	ND		0.2	ND		0.2
cis-1,2-Dichloroethene	70	NS		0.2	ND		0.2	ND		0.2	ND		0.2
Tetrachloroethene	5	NS		0.2	ND		0.2	ND		0.2	ND		0.2
Trichloroethene	5	NS		2	ND		0.4	ND		0.2	ND		0.2
Vinyl Chloride	2	NS		0.4	ND		0.2	ND		0.4	ND		0.4

CLIENT ID: LAB ID: COLLECTION DATE: SAMPLE MATRIX: SAMPLE UNITS:		MW-13D 1215132 12/4/2019 Groundwater µg/L			MW-14I 1215128 12/4/2019 Groundwater µg/L			PW-3 1215127 12/4/2019 Groundwater µg/L		
Analyte	Cleanup Standard* (µg/L)	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
<i>Volatile Organic Compounds</i>										
Carbon Tetrachloride	5	ND		0.2	ND		0.2	ND		0.2
1,2-Dichloroethane	5	ND		2	ND		2	ND		2
1,1- Dichloroethene	7	ND		0.2	ND		0.2	170		0.2
cis-1,2-Dichloroethene	70	ND		0.2	ND		0.2	9		0.2
Tetrachloroethene	5	ND		0.2	ND		0.2	55		0.2
Trichloroethene	5	ND		0.2	ND		0.2	510		0.2
Vinyl Chloride	2	ND		0.4	ND		0.4	ND		0.4

Notes:

* Cleanup Standard as listed in Record of Decision.

¹ No sample was taken from MW-2S during the semi-annual sampling event; system not properly functioning

MDL: Method Detection Limit

Q: Lab Qualifier

Bolded values indicate results greater than MDL.

Highlighted values indicate results exceed the cleanup standard.

ND: Non Detect

NS: Not Sampled

Table 2
Surface Water Sampling Results - December 2019

North Penn Area 2 Superfund Site
 Hatfield Township, PA

Analyte	CLIENT ID:	SMP-0			SMP-1			SMP-2			SMP-3		
	LAB ID:	1214925, 1214926			1214927, 1215846, 1215847			1214928, 1214929			12,149,301,214,931		
	COLLECTION DATE:	12/4/2019			12/4/2019, 12/5/2019 ¹			12/4/2019			12/4/2019		
	SAMPLE MATRIX:	Surface Water			Surface Water			Surface Water			Surface Water		
	SAMPLE UNITS:	µg/L			µg/L			µg/L			µg/L		
	Surface Water Criteria* (µg/L)												
		Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Volatile Organic Compounds													
Carbon Tetrachloride	0.23	ND		0.06	ND		0.06	ND		0.06	ND		0.06
1,2-Dichloroethane	0.38	ND		0.05	ND		0.05	0.06	J	0.05	ND		0.05
1,1-Dichloroethene	33	ND		0.05	ND		0.05	ND		0.05	0.06	J	0.05
Tetrachloroethene	0.69	ND		0.05	ND		0.05	ND		0.05	ND		0.05
Trichloroethene	2.5	ND		0.05	ND		0.05	0.06	J	0.05	0.7	J	0.05
Vinyl Chloride	0.025	ND		0.020	ND		0.020	ND		0.020	ND		0.020
Dissolved Metals													
Chromium	NA**	ND		1.6	ND		1.6	ND		1.6	ND		1.6
Trivalent Chromium waters	101	ND		10.0	ND		10.0	ND		10.0	ND		10
Hexavalent Chromium	**	ND		10.0	ND		10.0	ND		10.0	ND		10
Zinc	163	ND		3.7	ND		3.7	ND		3.7	ND		3.7
Cadmium	0.32	ND		0.15	ND		0.15	ND		0.15	0.20	J	0.15
Lead	3.79	ND		0.071	ND		0.071	ND		0.071	0.12	J	0.071
Total Metals													
Antimony	5.6	ND		0.41	ND		0.41	ND		0.41	ND		0.41
Arsenic	10	ND		0.68	ND		0.68	ND		0.68	0.80	J	0.68
Thallium	0.24	ND		0.13	ND		0.13	ND		0.13	ND		0.11

Notes:

* Criteria are the lower value of the Fish and Aquatic Life Continuous Criteria and the Human Health Criteria. See Table 1 in Remedial Action Sampling and Analysis Plan.

** Chromium III = Total Chromium - Hexavalent Chromium. Calculation performed by the laboratory.

Only Chromium III is needed for the site requirements

¹ SMP-1 Dissolved Metals and Total Metals sampled on 12/5/2019

MDL: Method Detection Limit

Q: Lab Qualifier

J: Indicates an estimated value between the MDL and the Practical Quantitation Limit (PQL) for the analyte.

Bold values indicate results greater than MDL.

Highlighted values indicate results exceed the cleanup standard.

ND: Not Detected

NS: Not Sampled

Table 3
Performance Data for PW-1 and PW-3 Operation
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania
Updated 20 January 2020

Date and Time	Totalizer Reading (gal)	Cumulative Total Flow (gal)	Average Flow for Period (gpm)	Average Flow for Period (gpd)	Total VOC Conc in Well (ug/l)	Cumulative Pounds VOCs Removed	Efficiency - Pounds removed/ 100K gal	Removal Rate - Pounds/ year @ 20,000 gpd
PW-1 Operation								
01/01/01 12:00								
04/28/02 14:00		9,641,700	13.9	20,000	809	65	0.7	49
PW-3 Operation								
12/14/02 15:56	3,470,840	5,945,840	14.8	21,326	4,170	240	3.5	254
12/04/03 11:00	10,897,332	13,372,332	14.0	20,138	3,351	472	2.8	204
12/21/04 08:30	18,837,960	21,312,960	14.0	20,171	1,619	627	1.4	99
11/07/05 16:03	25,622,360	28,097,360	15.3	21,978	1,602	727	1.3	98
12/18/06 08:00	3,147,400	36,874,830	30.1	43,276	2,000	846	1.7	122
12/10/07 10:04	10,148,650	43,876,080	12.2	17,556	1,618	965	1.4	99
12/11/08 10:27	6,734,020	51,983,032	14.5	20,828	869	1,050	0.7	53
11/30/09 07:45	4,145,450	59,125,462	14.1	20,356	981	1,110	0.8	60
12/23/10 15:01	1,820,650	67,867,920	17.4	25,049	659	1,171	0.5	40
12/15/11 09:35	4,307,990	76,695,207	17.4	25,125	725	1,221	0.6	44
12/13/12 08:28	2,264,504	84,044,677	14.1	20,321	693	1,261	0.6	42
12/19/13 09:42	9,025,402	90,805,575	9.8	14,128	803	1,306	0.7	49
12/30/14 09:38	16,676,354	98,456,527	10.3	14,818	745	1,355	0.6	45
12/22/15 09:20	23,608,432	105,388,605	13.0	18,650	753	1,396	0.6	46
12/06/16 07:30	30,673,869	112,454,042	13.9	20,014	730	1,444	0.6	44
12/07/17 10:30	38,320,799	120,100,972	13.9	19,988	828	1,499	0.7	50
12/11/18 13:36	45,770,469	127,550,642	15.8	22,799	713	1,548	0.6	43
01/11/19 09:30	46,451,677	128,231,850	15.6	22,459	702	1,551	0.6	43
02/04/19 11:00	47,011,094	128,791,267	16.1	23,248	702	1,555	0.6	43
03/13/19 15:45	47,834,238	129,614,411	15.4	22,129	702	1,560	0.7	49
04/04/19 08:45	48,306,489	130,086,662	15.1	21,754	702	1,562	0.7	49
05/09/19 00:10	49,133,509	130,913,682	16.6	23,873	691	1,567	0.7	49
06/14/19 11:30	49,862,604	131,642,777	13.9	19,990	718	1,571	0.7	49
07/01/19 14:00	50,171,478	131,951,651	12.5	18,058	718	1,573	0.7	48
08/06/19 13:15	50,965,275	132,745,448	15.3	22,069	718	1,578	0.7	48
09/16/19 08:00	51,876,658	133,656,831	15.5	22,348	718	1,583	0.7	48
10/16/19 12:00	380,374	134,415,898	19.0	27,329	718	1,588	0.7	48
11/05/19 07:30	862,318	134,897,842	16.9	24,325	718	1,591	0.7	48
12/16/19 12:30	1,685,802	135,721,326	13.9	19,983	744	1,596	0.6	47
01/10/20 10:45	2,215,113	136,250,637	14.7	21,234	691	1,599	0.6	47

Key Dates

3/18/10 - Pump pulled and cleaned; new Totalizer/Flow Meter installed.
3/18/10 cont. - End reading = 6,208,500 gal; new meter start at 0 gal.
5/20/10 - Replaced liquid (non-motor) end of the pump (Goulds 18GS07).
9/9/10 - Penn Color reported the pump stopped working in the morning.
9/15/10 - Installed new pump (Goulds 18GS10422C, 1hp). Replaced pump control box with 15A breaker and enclosure (previous control box not rated for 1hp motor).
10/19/10 - Flow meter problem observed.
10/21/10 - New totalizer/flow meter installed. End reading = 4,858,758; New meter start at 0 gal.
4/8/11 - Due to site transformer problem disrupting electric power supply to pump, pump did not operate for approx. 1 day.
5/17/11 - PW-3 sampled during Remedial Design groundwater monitoring event. Value listed in table on 5/16/11 date.
6/22/11 - New totalizer/flow meter installed. End reading = 6,339,947; New meter start at 0 gal.
6/19/12 - New flow meter and automated system installed (RA implementation). End reading = 8,158,592 gal; New meter start at 0 gal.
8/30/12 - Data indicate pump did not operate 7/18/12 17:35 through 7/23/12 08:50, or 7/26/12 19:20 through 7/27/12 11:05. Alerts programming issues still being investigated.
8/30/12 - Flow meter total reset to 0 gal. End reading prior to reset = 1,234,364 gal.
11/8/12 - The October reading was delayed due to Hurricane Sandy.
10/7/13 - The pump was cleaned to try to increase the flow rate.
12/29/13 - The pump stopped working.
1/8/14 - Removed old pump and riser pipe. Riser pipe restricted due to buildup. Identified the need for 3-phase motor.
1/10/14 - Installed new pump (Goulds 18GS10422C, 1hp, with 3-phase 230V motor CentriPro M10432 100C313) and new 1" 160 psi black poly riser pipe.
12/26/14 - 12/30/14 - Pump shut down due to full bag filter on Penn E&R treatment system.
2/27/15 - The pump had been shut down for a period of time due to full bag filter on Penn E&R treatment system.
3/10/15 - Replaced pump motor (Goulds 18GS10, serial # A1549302) and riser pipe. Pump set at 100' bgs.
3/29/16 - Replaced pump wet end (Goulds 18GS10, 8 stage, 4", 1HP), not the motor, and riser pipe. Pump set at 100' bgs.
3/28/17 - Replaced pump wet end (Goulds 18GS10, 8 stage, 4", 1HP), not the motor, and riser pipe. Pump set at 100' bgs.
1/9/18 - Replaced pump wet end (Goulds 18GS10, 8 stage, 4", 1HP), not the motor, and riser pipe. Pump set at 100' bgs.
11/8/18 - Replaced pump wet end (Goulds 18GS10, 8 stage, 4", 1HP), not the motor, and riser pipe. Pump set at 100' bgs.
6/26/19 - Replaced pump wet end (Goulds 18GS10, 8 stage, 4", 1HP), not the motor, and riser pipe. Pump set at 100' bgs.
10/2/19 - Replaced PW-3 flowmeter.

Total VOC Concentration Basis

Values in **bold** are actual sample results.
Values for dates between samples are the average of the two samples.
Values after the most recent sample date are roll-forward values
and will be updated once the next sample result is obtained.

Notes: Results from 6/1/05 through 12/15/11 include Freon 113 (typically <10 ug/l) and TCFM (typically <20 ug/l) which were not previously included in total VOCs.
For 2002 - 2018, spreadsheet rows compressed (hidden) to show only last data for the year in order to save space on table, but all data are preserved.

Table 4
Performance Data for MW-2 Operation
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania
Updated 29 January 2020

Date and Time	Pump Cycle Count	Cumulative Total Flow (gal) - 0.07 gal/cycle	Average Flow for Period (gpm)	Average Flow for Period (gpd)	Total VOC Conc in Well (ug/l)	Cumulative Pounds VOCs Removed	Efficiency - Pounds removed/ 100K gal	Removal Rate - Pounds/ year @ 400 gpd
MW-2 Operation								
12/21/04 08:30	1,600,000	112,000	0.403	581	19,528	17.5	16.3	24
11/07/05 16:03	3,412,970	238,908	0.513	739	15,150	40.2	12.6	18
12/18/06 08:00	6,997,105	489,797	0.069	99	14,205	68.8	11.9	17
12/10/07 10:14	6,997,131	489,799	0.000	0	14,205	68.8	11.9	
12/11/08 10:24	9,324,448	652,711	0.612	882	10,120	93.9	8.4	12
11/30/09 07:42	11,333,363	793,335	0.241	347	16,266	106.4	13.6	20
12/23/10 15:01	13,040,011	912,801	0.107	154	9,531	120.6	8.0	12
12/15/11 09:35	14,454,676	1,011,827	0.537	773	11,822	129.1	9.9	14
12/13/12 08:28	17,751,367	1,242,596	0.481	693	10,889	145.3	9.1	13
12/19/13 09:42	21,099,680	1,476,978	0.425	612	15,413	173.5	12.9	19
12/30/14 09:38	23,758,563	1,663,099	0.381	549	10,822	195.2	9.0	13
12/22/15 09:20	969,132	1,730,943	0.175	251	4,392	199.4	3.7	5
12/06/16 07:30	2,928,310	1,868,085	0.232	334	2,327	203.4	1.9	3
12/07/17 10:30	5,265,210	2,031,668	0.309	445	2,655	209.0	2.2	3
12/11/18 13:36	7,963,197	2,220,527	0.424	611	1,867	212.0	1.6	2
01/11/19 09:30	8,226,667	2,238,970	0.415	598	1,370	212.2	1.1	2
02/04/19 11:00	8,393,683	2,250,661	0.337	486	1,370	212.4	1.1	2
03/13/19 15:45	8,413,728	2,252,065	0.026	38	1,370	212.4	1.1	2
04/04/19 08:45	54,999	2,257,070	0.272	392	1,370	212.4	1.1	2
05/09/19 00:10	319,797	2,275,606	0.372	535	872	212.6	0.7	1
06/14/19 11:30	615,212	2,296,285	0.394	567	872	212.7	0.7	1
07/01/19 14:00	727,696	2,304,159	0.320	460	872	212.8	0.7	1
08/06/19 13:15	1,012,071	2,324,065	0.384	553	872	212.9	0.7	1
09/16/19 08:00	1,262,183	2,341,573	0.298	429	872	213.1	0.7	1
10/16/19 12:00	1,438,469	2,353,913	0.284	409	872	213.2	0.7	1
11/05/19 07:30	1,627,908	2,367,174	0.465	669	872	213.3	0.7	1
12/16/19 12:30	1,764,202	2,376,714	0.161	232	872	213.3	0.7	1
01/10/20 10:45	1,764,204	2,376,714	0.000	0	872	213.3	0.7	1

Key Dates

1/27/10 - Pump was shut down by Penn Color for previous 36 hours, due to rain flooding event.
3/18/10 - Pump pulled and cleaned; replaced pressure gage.
9/15/10 - Pump pulled and cleaned.
10/15/10 - Pump reading indicated pump no functioning.
10/21/10 - Pump inspected and determined to be unfixable.
11/8/10 - Replacement pump installed (QED AP2B Short).
5/17/11 - MW-2 sampled during Remedial Design groundwater monitoring event. Value listed in table on 5/16/11 date.
6/22/11 - Pump operating but reading not obtained; so used average of adjacent table values.
9/27/11 - Pump operating but reading not obtained; so used average of adjacent table values.
6/19/12 - Pump operating but reading not obtained; so used average of adjacent table values.
11/8/12 - The October reading was delayed due to Hurricane Sandy.
4/7/15 - Replaced cycle counter. It was discovered to have been malfunctioning since sometime in January, though the pump had been operating correctly.
2/4/19 - MW-2S was discovered to be not pumping during February O&M visit. Issues with air supply and regulator were resolved. Pumping resumed.
3/25/19 - Replaced cycle counter. Pre-replacement reading: 8,430,235, Post replacement reading: 0,000,014
1/21/20 - Corrected formula for cumulative total flow.

Values in **bold** are actual sample results.

Values for dates between samples are the average of the two samples.

Values after the most recent sample date are roll-forward values and will be updated once the next sample result is obtained.

Notes: Results from 6/1/05 on include Freon 113 (7 ug/l) and TCFM (19 ug/l) which were not previously included in total VOCs.

For 2002 - 2018 spreadsheet rows compressed (hidden) to show only last data for the year in order to save space on table, but all data are preserved.

Table 5
Performance Data for All Recovery Wells
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania
Updated 29 January 2020

Pumps Operated	Date and Time	Cumulative Pounds VOCs Removed	% of VOCs Removed	Estimated Pounds VOCs Remaining	Total Flow	Average Flow for Period (gpd)
PW-1	01/01/01 12:00			2,576		
	04/28/02 14:00	65	2.6%	2,511		20,000
PW-3	04/29/02 14:00			2,511		
	12/14/02 15:56	240	9.6%	2,271		21,326
	12/04/03 11:00	472	18.8%	2,039		20,138
PW-3 & MW-2	08/16/04 12:10	593	23.6%	1,918	18,772,525	22,605
	12/21/04 08:30	644	25.7%	1,867	21,424,960	20,751
	11/07/05 16:03	767	30.5%	1,744	28,336,268	22,717
	12/18/06 08:00	915	36.4%	1,596	37,364,627	43,375
	12/10/07 10:04	1,034	41.2%	1,477	44,365,879	17,556
	12/11/08 10:27	1,144	45.6%	1,367	52,635,743	21,710
	11/30/09 07:45	1,216	48.4%	1,295	59,918,797	20,703
	12/23/10 15:01	1,292	51.5%	1,219	68,780,721	23,429
	12/15/11 09:35	1,350	53.8%	1,161	77,707,034	25,898
	12/13/12 08:28	1,407	56.0%	1,104	85,287,273	21,014
	12/19/13 09:42	1,479	58.9%	1,032	92,282,553	14,739
	12/30/14 09:38	1,550	61.7%	961	100,119,626	15,367
	12/22/15 09:20	1,596	63.6%	915	107,119,548	18,901
	12/06/16 07:30	1,647	65.6%	864	114,322,127	20,348
	12/07/17 10:30	1,708	68.0%	803	122,132,640	20,432
	12/11/18 13:36	1,760	70.1%	751	129,771,169	23,410
	01/11/19 09:30	1,764	70.2%	747	130,470,820	23,058
	02/04/19 11:00	1,767	70.4%	744	131,041,928	23,734
	03/13/19 15:45	1,772	70.6%	739	131,866,476	22,166
	04/04/19 08:45	1,775	70.7%	736	132,343,732	22,146
	05/09/19 00:10	1,780	70.9%	731	133,189,288	24,408
	06/14/19 11:30	1,784	71.1%	727	133,939,062	20,557
	07/01/19 14:00	1,786	71.1%	725	134,255,810	18,519
	08/06/19 13:15	1,791	71.3%	720	135,069,513	22,623
	09/16/19 08:00	1,797	71.5%	714	135,998,404	22,777
	10/16/19 12:00	1,801	71.7%	710	136,769,811	27,738
	11/05/19 07:30	1,804	71.9%	707	137,265,016	24,995
	12/16/19 12:30	1,809	72.1%	702	138,098,040	20,215
	01/10/20 10:45	1,812	72.2%	699	138,627,351	21,234
				Average (~last 6 months)		22,329

Notes: For 2002 - 2018 spreadsheet rows compressed to show only last data for the year in order to save space on table, but all data are preserved.

8/30/12 - PW-3 flow meter reading/programming issue.

Table 6
Water Level Data: 04 December 2019
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania

Date	Well	Top of Casing Elevation (ft amsl)	Depth to Water (ft below top of inner casing)	Water Level Elevation (ft amsl)	Notes
12/4/2019	MW-1	354.34	13.11	341.23	
12/4/2019	MW-1I	354.3	14.03	340.27	
12/4/2019	MW-1D	354.22	14.57	339.65	
12/4/2019	MW-2	355.33	--	--	Unable to be gauged
12/4/2019	MW-2I	353.13	16.32	336.81	
12/4/2019	MW-2D	353.38	16.30	337.08	
12/4/2019	MW-3A	348.72	11.88	336.84	
12/4/2019	MW-3B	353.18	16.39	336.79	
12/4/2019	MW-3C	348.59	12.47	336.12	
12/4/2019	MW-3D	348.88	11.49	337.39	
12/4/2019	MW-4S	354.5	11.98	342.52	
12/4/2019	MW-4D	353.51	11.08	342.43	
12/4/2019	MW-5S	346.68	9.73	336.95	
12/4/2019	MW-5I	348.84	11.60	337.24	
12/4/2019	MW-5D	349.12	11.65	337.47	
12/4/2019	MW-5XD	348.73	11.64	337.09	
12/4/2019	MW-6	347.23	9.02	338.21	
12/4/2019	MW-7	350.28	9.79	340.49	
12/4/2019	MW-8S	362.72	8.10	354.62	
12/4/2019	MW-8D	363.08	8.06	355.02	
12/4/2019	MW-9S	347.64	5.15	342.49	
12/4/2019	MW-9I	348.63	6.35	342.28	
12/4/2019	MW-9D	347.99	5.21	342.78	
12/4/2019	MW-10S	354.29	12.62	341.67	
12/4/2019	MW-10I	355.13	13.41	341.72	
12/4/2019	MW-10D	354.66	13.88	340.78	
12/4/2019	MW-11A	344.14	4.15	339.99	
12/4/2019	MW-11B	344.2	4.30	339.9	
12/4/2019	MW-11C	343.89	4.35	339.54	
12/4/2019	MW-12A	355.31	10.16	345.15	
12/4/2019	MW-12B	354.91	9.11	345.8	
12/4/2019	MW-13S	341.78	7.08	334.7	
12/4/2019	MW-13I	340.89	5.94	334.95	
12/4/2019	MW-13D	342.2	5.64	336.56	
12/4/2019	MW-14S	351.91	9.11	342.8	
12/4/2019	MW-14I	351.79	9.53	342.26	
12/4/2019	MW-14D	351.51	9.47	342.04	
12/4/2019	PCGW-2	355.91	17.91	338	
12/4/2019	PCGW-3	353.97	8.94	345.03	
12/4/2019	PW-3	353.47	17.66	335.81	
12/4/2019	SMP-0	342.29	0.94	341.35	
12/4/2019	SMP-1A	338.47	0.00	338.47	
12/4/2019	SMP-1B	338.21	-0.31	338.52	
12/4/2019	SMP-2A	334.53	--	--	Could not be located
12/4/2019	SMP-2B	334.56	--	--	Could not be located
12/4/2019	SMP-3	335.12	1.84	333.28	

Notes:

ft = feet

ft amsl = feet above mean sea level

Table 7
PFAS Sampling Results - November 2019
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania

Groundwater Sample Results

MONITORING WELL: LAB ID: COLLECTION DATE: SAMPLE MATRIX: SAMPLE UNITS: Threshold for Requiring Confirmatory Sampling ⁴ (ng/L)		MW-1 1201483 11/12/2019 Groundwater ng/L			MW-1I 1201482 11/12/2019 Groundwater ng/L			MW-1D 1201484 11/12/2019 Groundwater ng/L			MW-4S 1204312 11/14/2019 Groundwater ng/L			MW-4D 1202044 11/13/2019 Groundwater ng/L		
Analyte		Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Perfluoroalkyl Substance																
Perfluoro-octanesulfonate (PFOS)	70	20		0.45	14		0.46	1.0	J	0.43	11		0.43	1.8		0.44
Perfluorooctanoic acid (PFOA)	70	96		0.45	180		0.46	3.1		0.43	17		0.43	3.0		0.44
Total	70	116			194			4.1			28			4.8		

Groundwater Sample Results

MONITORING WELL: LAB ID: COLLECTION DATE: SAMPLE MATRIX: SAMPLE UNITS: Threshold for Requiring Confirmatory Sampling ⁴ (ng/L)		MW-8S 1201486 11/12/2019 Groundwater ng/L			MW-8D 1201485 11/12/2019 Groundwater ng/L			MW-12A 12043808 11/14/2019 Groundwater ng/L			MW-12B 12043809 11/14/2019 Groundwater ng/L			MW-13S 1202042 11/13/2019 Groundwater ng/L		
Analyte		Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Perfluoroalkyl Substance																
Perfluoro-octanesulfonate (PFOS)	70	32		0.41	2.2		0.43	2.3		0.43	1.2	J	0.43	20		0.41
Perfluorooctanoic acid (PFOA)	70	690		4.1	9.9		0.43	7.5		0.43	2.3		0.43	7.6		0.41
Total	70	722			12.1			9.8			3.5			27.6		

Groundwater Sample Results

MONITORING WELL: LAB ID: COLLECTION DATE: SAMPLE MATRIX: SAMPLE UNITS: Threshold for Requiring Confirmatory Sampling ⁴ (ng/L)		MW-13I 1202041 11/13/2019 Groundwater ng/L			MW-13D 1202043 11/13/2019 Groundwater ng/L			MW-14S 1204307 11/14/2019 Groundwater ng/L			MW-14I 1204306 11/14/2019 Groundwater ng/L			MW-14D 1204310 11/14/2019 Groundwater ng/L		
Analyte		Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Perfluoroalkyl Substance																
Perfluoro-octanesulfonate (PFOS)	70	2.4		0.41	0.62	J	0.42	1.3	J	0.41	0.95	J	0.41	0.99	J	0.44
Perfluorooctanoic acid (PFOA)	70	3.5		0.41	3.5		0.42	0.51	J	0.41	0.66	J	0.41	0.86	J	0.44
Total	70	5.9			4.12			1.81			1.61			1.85		

Table 7
PFAS Sampling Results - November 2019
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania

Equipment Blank Results

Equipment Blank Results		SAMPLE ID:			EB-01-20191111-01 ⁵			EB-02-20191111-01 ⁵			EB-03-20191111-01 ⁵			EB-04-20191111-01 ⁵		
		LAB ID:			1201477			1201478			1201479			1201480		
		COLLECTION DATE:			11/11/2019			11/11/2019			11/11/2019			11/11/2019		
		SAMPLE MATRIX:			Water			Water			Water			Water		
		SAMPLE UNITS:			ng/L			ng/L			ng/L			ng/L		
Analyte		Threshold for Requiring Confirmatory Sampling ⁴ (ng/L)			Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Perfluoroalkyl Substance																
Perfluoro-octanesulfonate (PFOS)	70	ND		0.43	ND		0.43	ND		0.43	ND		0.42	ND		0.43
Perfluorooctanoic acid (PFOA)	70	ND		0.43	ND		0.43	ND		0.43	ND		0.42	ND		0.43
Total	70	ND			ND			ND			ND			ND		

Performance Sample Results

Analyte		Certified Value ² (ng/L)	QC Performance Acceptance Limit ³ (ng/L)	SAMPLE ID: LAB ID: COLLECTION DATE: SAMPLE MATRIX: SAMPLE UNITS:			PS-SS-20191111-01 ¹ 1201481 11/11/2019 Water ng/L			PS-SS-20191112-01 ¹ 1201487 11/12/2019 Water ng/L			PS-SS-20191113-01 ¹ 1202045 11/13/2019 Water ng/L			PS-SS-20191114-01 ¹ 1204311 11/14/2019 Water ng/L		
				Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL			
				Perfluoroalkyl Substance														
				Perfluoro-octanesulfonate (PFOS)	309	185-433	300		0.51	280		0.50	270		0.50	180		0.51
				Perfluorooctanoic acid (PFOA)	388	233-543	440		5.1	350		0.50	360		0.50	240		0.51

Notes:

¹ PS-SS-20191111-01, PS-SS-20191112-01, PS-SS-20191113-01, and PS-SS-20191114-01 are performance evaluation samples; Product: WatR™ Supply Per- & Polyfluoroalkyl Substances (PFAS) GW & SW, Catalog Number: 731, Lot No.: S252-731.

² Certified Value is the actual "made-to" concentration.

³ The QC Performance Acceptable Limit closely approximates a 95% confidence interval of the performance that experienced laboratories should achieve using accepted environmental methods.

⁴ Confirmatory sampling limit as listed in the Sampling and Analysis Plan Addendum for Perfluoroalkyl Substances, 29 January 2019.

⁵ Equipment blank

J: Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)

MDL: Method Detection Limit

ND: Not Detected

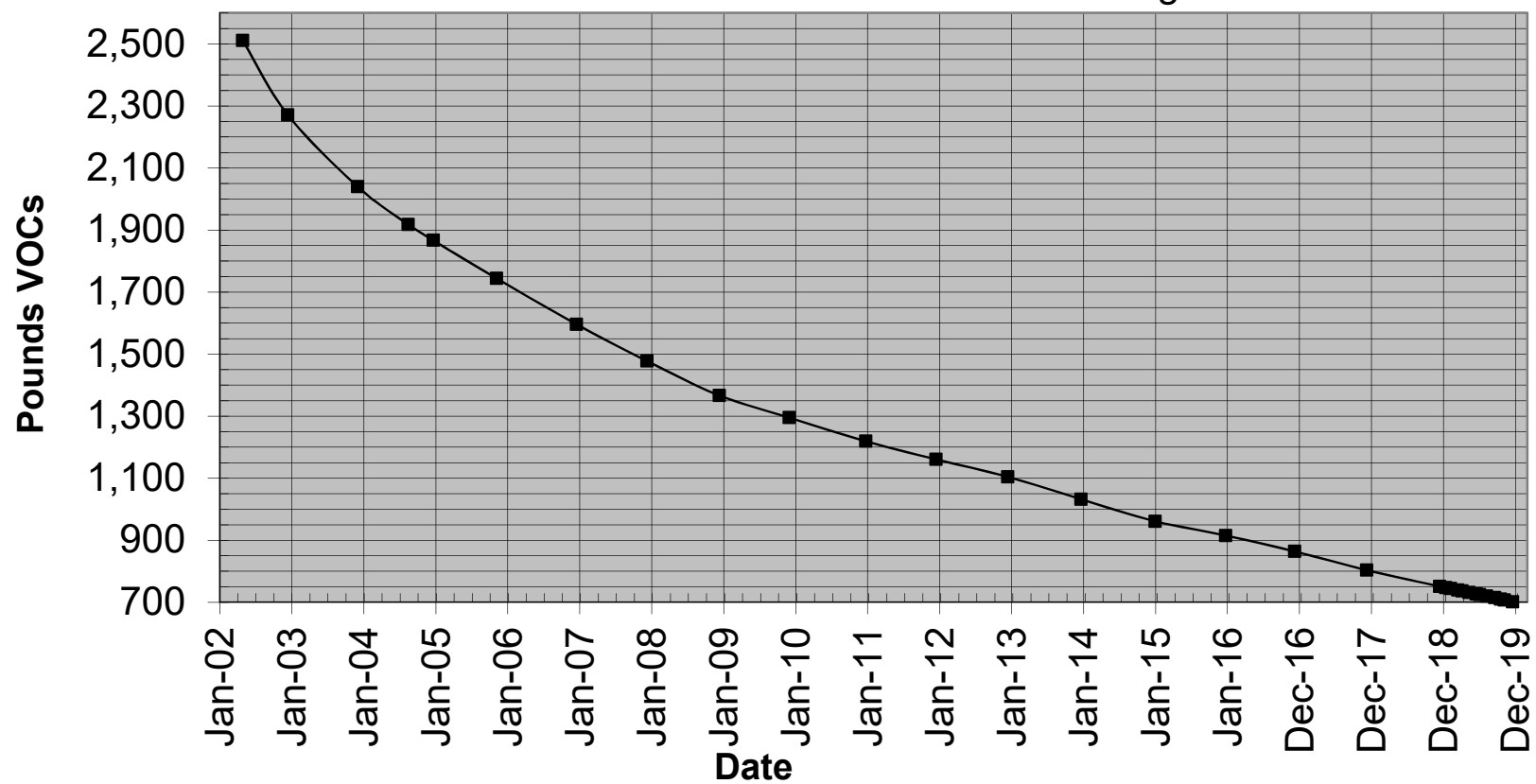
Q: Lab Qualifier

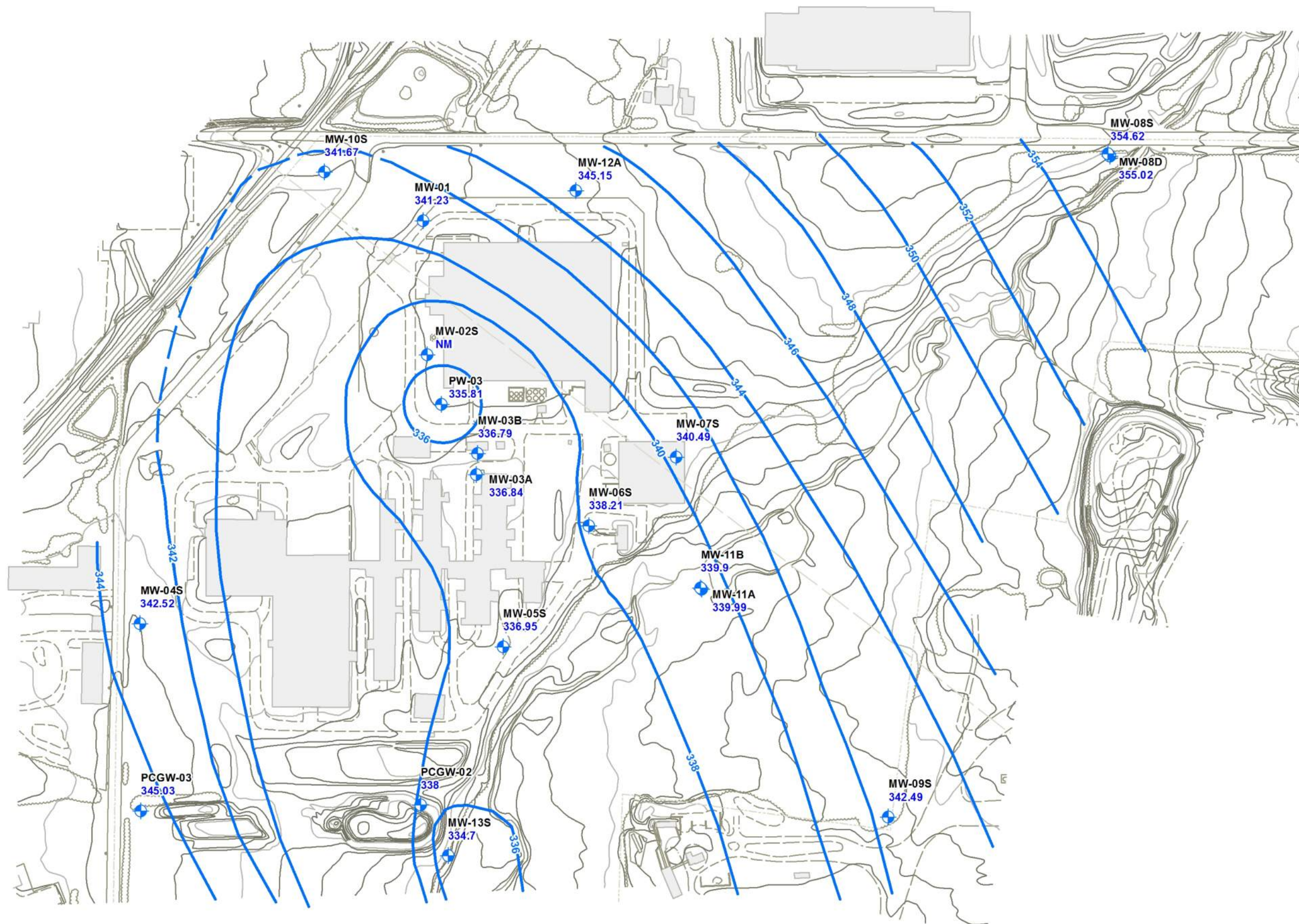
All units in nanogram per liter (ng/L)

Bolded values indicate results greater than MDL.

Highlighted values indicate results exceeding the threshold.

Figure A
North Penn Area 2 Superfund Site
Estimated Pounds VOCs Remaining





Legend

- Shallow Monitoring Well
- Potentiometric Surface Contour (2-foot Interval) – Dashed where inferred

344.06 Groundwater Elevation (ft-amsl)

NOTES:

1. Groundwater Elevations based on 12/04/2019 gauging event.
2. MW-02S was not gauged in December 2019.
3. DWG. NO. 1188, "Penn Color, Inc. Formerly Ametek, Inc." 4/17/2000, James M. Stewart, Inc. Land Surveyors Philadelphia, Pennsylvania

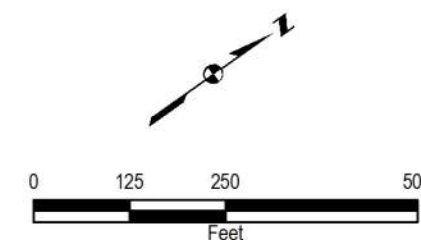
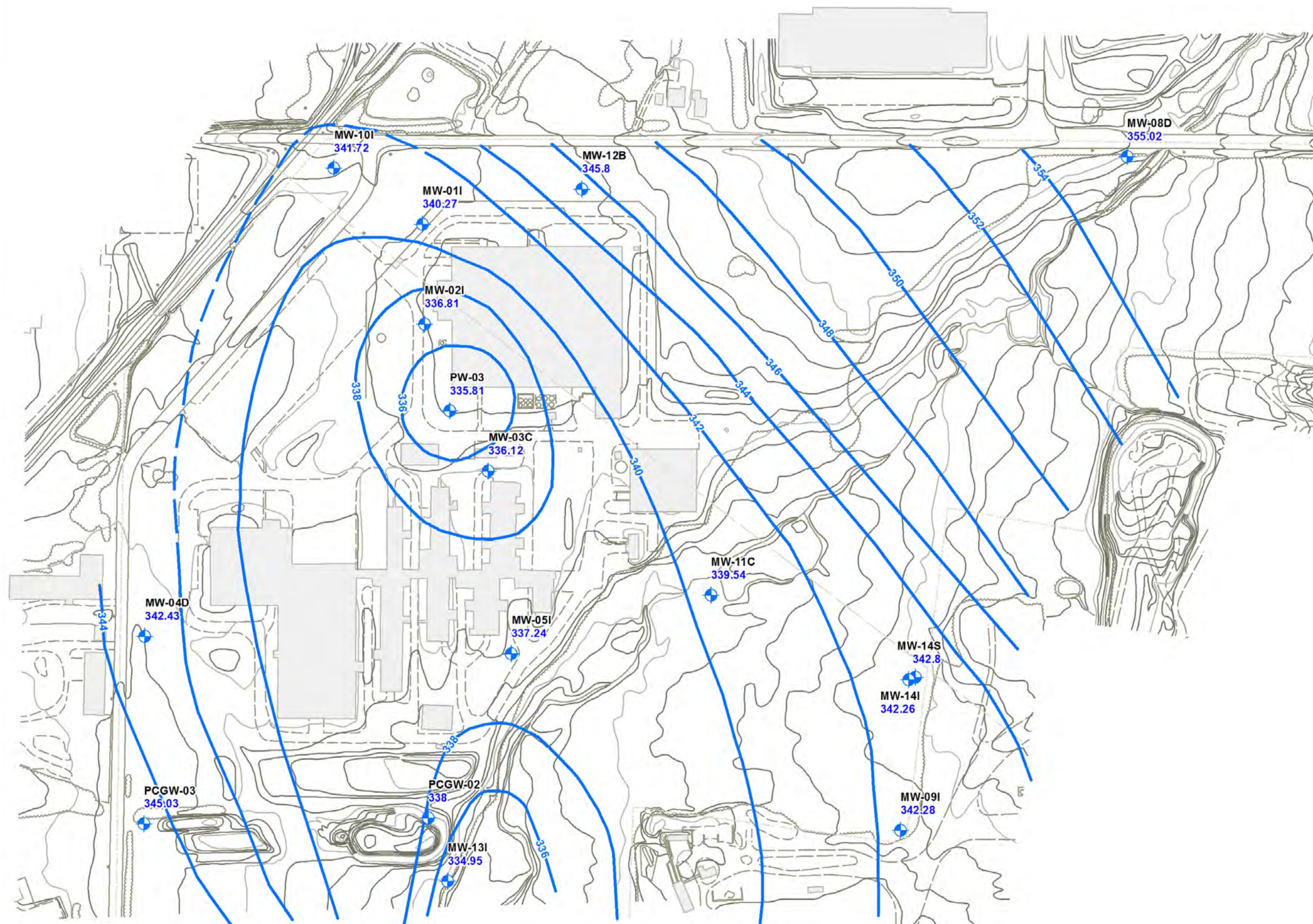


FIGURE 1
 Shallow Potentiometric Contour Map
 December 4, 2019
 North Penn Area 2 Superfund Site
 Hatfield Township, Pennsylvania





Legend

- Intermediate Monitoring Well
- Potentiometric Surface Contour (2-foot Interval) – Dashed where inferred

344.06 Groundwater Elevation (ft-amsl)

NOTES:

1. Groundwater Elevations based on 12/04/2019 gauging event.
2. DWG. NO. 1188, "Penn Color, Inc. Formerly Ametek, Inc." 4/17/2000, James M. Stewart, Inc. Land Surveyors Philadelphia, Pennsylvania

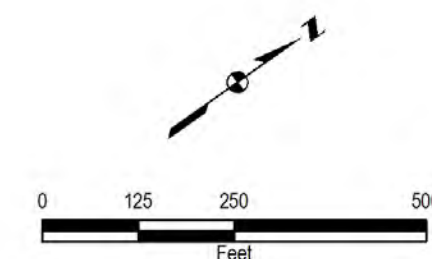
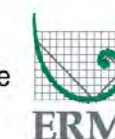
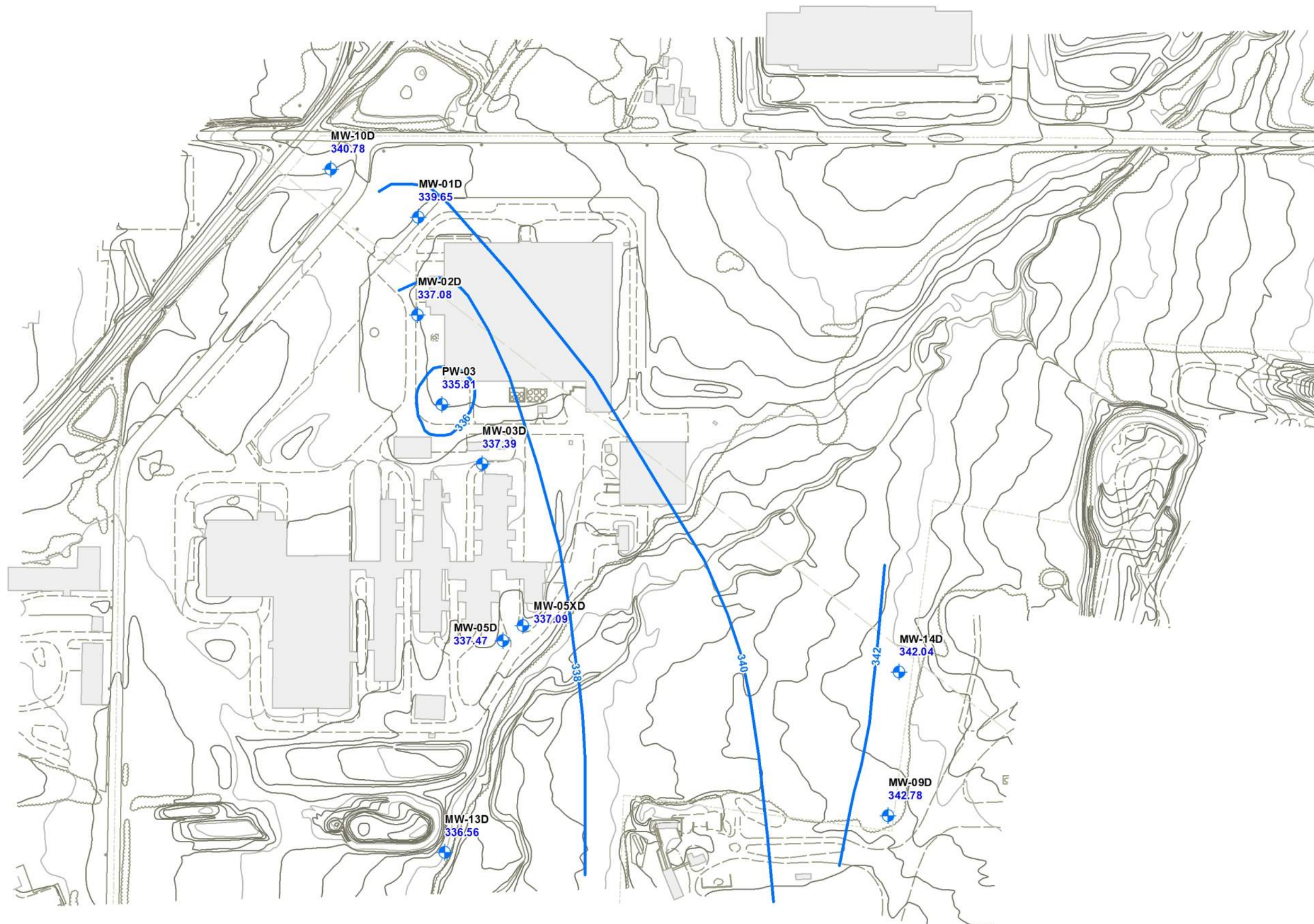


FIGURE 2
Intermediate Potentiometric Contour Map
December 4, 2019
North Penn Area 2 Superfund Site
Hatfield Township, Pennsylvania





Legend

- Deep Monitoring Well
- Potentiometric Surface Contour (2-foot Interval) – Dashed where inferred
- 344.06** Groundwater Elevation (ft-amsl)

NOTES:

1. Groundwater Elevations based on 12/04/2019 gauging event.
2. DWG. NO. 1188, "Penn Color, Inc. Formerly Ametek, Inc." 4/17/2000, James M. Stewart, Inc. Land Surveyors Philadelphia, Pennsylvania

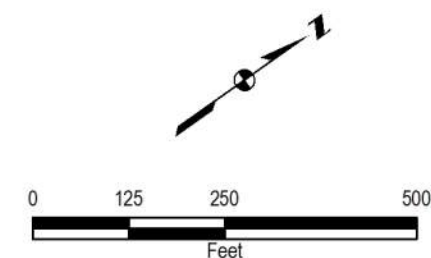


FIGURE 3
 Deep Potentiometric Contour Map
 December 4, 2019
 North Penn Area 2 Superfund Site
 Hatfield Township, Pennsylvania

